

Listing of Claims

The following listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently amended): A method for gettering a transition metal impurity diffused in a silicon crystal at ultra high-speeds to form deep impurity levels therein, said method comprising the steps of:

codoping two kinds of impurities consisting of oxygen (O) and carbon (C), into silicon at a concentration equal to or greater than that of said at least one transition metal impurity selected from the group consisting of Co, Ni and Cu which are released from a raw material during a process of forming a silicon single crystal and mixed in said silicon crystal, and Cu which is mixed in a silicon wafer during a process of printing a Cu wiring; and

thermally annealing said impurity-doped silicon at a temperature ranging from 250°C or more to precipitate an impurity to 500°C to form a transition metal – O – C complex comprising an atom of said transition metal impurity, said C and said O, so as to precipitate said impurity complex at an interstitial position in said silicon crystal, whereby said transition metal impurity is confined in said silicon crystal to prevent the ultra high-speed diffusion of said transition metal impurity and electrically deactivate deep impurity levels to be induced by said transition metal impurity.

2. (Canceled)

3. (Original): The method as defined in claim 1, wherein said codoping step includes codoping oxygen (O) in a natural manner and carbon (C) in an artificial manner, or both oxygen (O) and carbon (C) in an artificial manner, into a silicon melt during a silicon single crystal growth through a Czochralski crystal pulling process.

Preliminary Amendment
Attorney Docket No. 042440

4. (Original): The method as defined in claim 1, wherein said codoping step includes ion-injecting an oxygen ion and a carbon ion into a silicon wafer to codope both oxygen (O) and carbon (C) in an artificial manner, into said silicon wafer.